

IN THE CLAIMS:

Please amend the claims as follows.

Claim 1 (Canceled).

Claim 2 (Previously Presented): The radiation detector according to Claim 10, wherein a plurality of depressions having a predetermined depth are formed in array on the opposite surface side to the incident surface of the light to be detected, in the semiconductor substrate, and wherein each said photodiode is formed in a bottom portion of the associated depression.

Claim 3 (Previously Presented): The radiation detector according to Claim 10, wherein the resin film is provided so as to cover the entire incident surface of the light to be detected, in the semiconductor substrate.

Claim 4 (Previously Presented): The radiation detector according to Claim 10, wherein the semiconductor substrate is provided with an impurity region between the photodiodes adjacent to each other, for separating the photodiodes from each other.

Claim 5 (Previously Presented): The radiation detector according to Claim 10, wherein a high-impurity-concentration layer of the same conductivity type as the semiconductor substrate is formed on the incident surface side of the light to be detected, in the semiconductor substrate.

Claims 6-9 (Canceled).

Claim 10 (Previously Presented): A radiation detector comprising:
a photodiode array comprising a semiconductor substrate, wherein a plurality of photodiodes are formed in array on an opposite surface side to an incident surface of light to be detected, in the semiconductor substrate, and
wherein a resin film for transmitting the light to be detected and for functioning as a cushion layer is provided so as to cover at least regions corresponding to regions where the photodiodes are formed, on a side of the incident surface of the light to be detected, in the semiconductor substrate;
a scintillator panel arranged opposite to the incident surface of the light to be detected, in the photodiode array, and arranged to emit light with incidence of radiation; and
an optical resin provided so as to fill a space between a light exit surface of the scintillator panel and the resin film.

Claim 11 (Canceled).

Claim 12 (Previously Presented): The radiation detector according to Claim 10, wherein a thickness of the resin film is set in a range of 1-50 μm .

Claim 13 (Canceled).

Claim 14 (Previously Presented): The radiation detector according to Claim 10, further comprising an anti-reflection film provided on the incident surface of the light to be detected, in the semiconductor substrate,

wherein the resin film is provided on the anti-reflection film.

Claim 15 (Canceled).

Claim 16 (New): A method of producing a radiation detector, the method comprising:
a step of preparing a photodiode array having a semiconductor substrate and placing a plurality of photodiodes in array on a surface side of the photodiode array;
a step of providing a resin film for transmitting light to be detected and for functioning as a cushion layer, so as to cover another surface side of the photodiode array;
a step of holding the photodiode array under suction by a flat collet while the flat collet is in surface contact with the resin film, and bonding the photodiode array on a mounting wiring board; and
a step of mounting a scintillator panel on the another side surface side of the photodiode array through an optical resin.